Paper No. 13

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES

Ex parte B. MARK HIRST

Appeal No. 2000-0946
Application No. 08/704,217

ON BRIEF

Before ABRAMS, STAAB and BAHR, Administrative Patent Judges.
BAHR, Administrative Patent Judge.

DECISION ON APPEAL

This is a decision on appeal from the examiner's final rejection of claims 1-4. Claims 6-11 stand allowed and claim 5 stands objected to as depending from a rejected claim. No other claim is pending in this application.

BACKGROUND

The appellant's invention relates to power control systems and, more particularly, to a method and apparatus for determining the source voltage supplied to a resistive heating element (specification, page 1). Representative claim 1 is reproduced *infra* in the opinion section of this decision.

The following prior art references have been relied upon as evidence of obviousness in the rejections before us on appeal:

Oishi et al. (Oishi)	4,432,211	Feb. 21, 1984
Tamura et al. (Tamura)	4,549,073	Oct. 22, 1985

The following are the only rejections before us on appeal.[1]

(1) Claims 1-4 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Tamura.

(2) Claims 1-4 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Oishi.

Rather than reiterate the conflicting viewpoints advanced by the examiner and the appellant regarding the above-noted rejections, we make reference to the final rejection and answer (Paper Nos. 6 and 10) for the examiner's complete reasoning in support of the rejections and to the brief (Paper No. 9) for the appellant’s arguments thereagainst.

OPINION

In reaching our decision in this appeal, we have given careful consideration to the appellant's specification and claims, to the applied prior art references, and to the

[1] The examiner has withdrawn the other rejections, based on Hinman and Chidzey, set forth in the final rejection. See page 3 of the answer.

respective positions articulated by the appellant and the examiner. For the reasons which follow, we shall sustain both of the examiner's rejections.

Pursuant to the claim groupings set forth on page 4 of appellant's brief and in accordance with 37 CFR § 1.192(c)(7), we shall decide the appeal of rejections (1) and (2) on the basis of representative claim 1, with claims 2-4 standing or falling therewith. Representative claim 1 reads as follows:

> 1. An apparatus for determining a voltage of a power source, said apparatus comprising:
> a heating element;
> a means for sensing a temperature of said heating element; and
> a controller means for allowing a portion of power from said power source to said heating element, said controller means through said means for sensing measuring a rate of change in said temperature of said heating element, said voltage being proportional to said rate of change.

In rejecting claim 1 as being unpatentable over each of Tamura and Oishi, the examiner finds that each of these patents discloses a heating element (resistive heating element 2 of Tamura; heater 20 of Oishi), means for sensing the temperature of the heating elements (resistance sensing means 8 of Tamura; the current detecting circuit of Oishi) and a controller for determining the rate of change of temperature in the heating elements via the temperature sensing means. According to the examiner,

> [i]t should be noted that if the supply voltage increases or decreases then a proportion would exist between the voltage input and the rate of change detected. For instance, it is obvious and inherent that if the voltage input increased then

> the rate of change of temperature would proportionately increase [final rejection, page 3].

Although the rejections before us are obviousness rejections under 35 U.S.C. § 103(a), the examiner's position appears to be that all of the limitations of claim 1 are met by each of the applied patents. The examiner's statements on pages 4 and 5 of the answer to the effect that the rate of change in heating element temperature sensed by Tamura and Oishi is proportional to the input voltage over the heating element clarify that the examiner has determined that the limitation "said voltage being proportional to said rate of change" in claim 1 is met by each of Tamura and Oishi.

Tamura discloses a current controller for a resistive heating element wherein a sensing current generator 6 supplies a sensing current I_S to the heating element 2 for use by the resistance measuring means 8 in measuring the resistance (and hence the temperature) of the heating element. As explained in column 9, line 16, through column 10, line 68, upon initialization of the controller, prior to a calibration phase, the controller measures the slope of the resistance measurements as a function of time using a slope detection circuit 174 to determine whether the heating element is at ambient temperature. Once the resistance of the heating element at ambient temperature has been determined and stored and the controller calibrated to precisely ascertain temperature from measured resistance in accordance with equation (1) in column 2 of Tamura, a heating current supply 4 supplies a heating current I_H to the heating element to raise the temperature of the heating element. Periodically, the

heating current supply I_H is cut off from the heating element and the sensing current I_S is supplied to the heating element so that the resistance measuring means can measure the resistance to determine whether the desired heating element temperature has been reached.

Appellant does not challenge the examiner's findings that Tamura discloses a heating element, means for sensing temperature of the heating element and a controller means for measuring a rate of change in temperature of the heating element through the means for sensing temperature (see brief, pages 10 and 11). However, appellant contends that, because Tamura "fails to teach or suggest the rate of temperature change is detected while the power is active, as required in claim 1," the examiner's rejection is improper (brief, page 11). This characterization of Tamura is, of course, inaccurate, as the rate of change of resistance (temperature) is determined while the sensing current generator 6 supplies sensing current I_S to the heating element, that is, while the power is active. Further, the examiner's determination that the rate of change sensed by Tamura's slope detection circuit is proportional to the input voltage applied across the heating element during the supply of sensing current I_S thereto appears reasonable on its face and has not specifically been challenged by appellant.

Appellant's argument (brief, page 11) that Tamura fails to teach or suggest that, by measuring the rate of temperature change of the heating element while the power

supply is activated, the power source voltage can be determined is unavailing, as claim 1 does not positively recite a controller means which uses the rate of temperature change to determine the power source voltage.[2] It is well established that limitations not appearing in the claims cannot be relied upon for patentability. In re Self, 671 F.2d 1344, 1348, 213 USPQ 1, 5 (CCPA 1982). The language in the preamble of claim 1 "for determining a voltage of a power source," merely sets forth an intended use of the claimed apparatus and does not constitute positive recitation of structure for carrying out such use.[3]

After reviewing the Tamura patent in light of the arguments in appellant's brief, we conclude that Tamura discloses each and every element recited in appellant's claim 1. A disclosure that anticipates[4] under 35 U.S.C. § 102 also renders the claim unpatentable under 35 U.S.C. § 103, for "anticipation is the epitome of obviousness." Jones v. Hardy, 727 F.2d 1524, 1529, 220 USPQ 1021, 1025 (Fed. Cir. 1984). See

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[2] Claim 1 is distinct from allowed claim 6 in this regard.

[3] The preamble of a claim does not limit the scope of the claim when it merely states a purpose or intended use of the invention. See In re Paulsen, 30 F.3d 1475, 1479, 31 USPQ2d 1671, 1673 (Fed. Cir. 1994).

[4] To anticipate, every element and limitation of the claimed invention must be found in a single prior art reference, arranged as in the claim. Karsten Mfg. Corp. v. Cleveland Golf Co., 242 F.3d 1376, 1383, 58 USPQ2d 1286, 1291 (Fed. Cir. 2001); Scripps Clinic & Research Foundation v. Genentech, Inc., 927 F.2d 1565, 1576, 18 USPQ2d 1001, 1010 (Fed. Cir. 1991). It is not necessary that the reference teach what the subject application teaches, but only that the claim read on something disclosed in the reference, i.e., that all of the limitations in the claim be found in or fully met by the reference. Kalman v. Kimberly Clark Corp., 713 F.2d 760, 772, 218 USPQ 781, 789 (Fed. Cir. 1983), cert. denied, 465 U.S. 1026 (1984).

also In re Fracalossi, 681 F.2d 792, 794, 215 USPQ 569, 571 (CCPA 1982); In re Pearson, 494 F.2d 1399, 1402, 181 USPQ 641, 644 (CCPA 1974). Thus, the examiner's rejection of representative claim 1, as well as claims 2-4 which are grouped therewith, as being unpatentable over Tamura is sustained.

Turning now to the examiner's rejection of claims 1-4 as being unpatentable over Oishi, we note that Oishi measures the current flowing through a defrosting heater 20 and calculates the gradient or rate of decrease of the current to determine the point A, as shown in Figure 4, at which the frost begins to melt and the point B, as shown in Figure 4, at which frost removal is completed. Appellant (brief, pages 11-12) concedes that the examiner

> is correct in that Oishi, appears to disclose a heating element (20), means for sensing the temperature of the heating elements (22, 23), and a controller for determining the rate of change of temperature of the heating elements via the temperature sensing means (23, 24).

However, appellant argues on page 12 of the brief that the examiner's obviousness rejection should be reversed because: (1) Oishi fails to teach or suggest that by sensing the rate of change the supply voltage can be determined, (2) there is no teaching in Oishi that the voltage of the power source can vary, (3) Figure 4 clearly shows that the rate of change of the temperature of the heating element is not proportional to the supply voltage, and (4) the Oishi reference is not analogous art with respect to appellant's invention.

Appellant's first argument is not persuasive of any error on the examiner's part because, as discussed *supra*, claim 1 does not positively recite structure for determining or calculating supply voltage from the measured rate of temperature change. As for appellant's second argument, we perceive no requirement in claim 1 that the power source provide a variable voltage.

Appellant's statement that Figure 4 shows that the rate of change of the heating element temperature is not proportional to the supply voltage is not well founded. While appellant appears to be correct that the voltage applied to the heating element is kept essentially constant, the changing slope of the current vs. time curve merely illustrates that the rate of temperature change is a function of other variables, such as melting of frost on the heating element, for example, in addition to the source voltage. This is not inconsistent with the examiner's finding that the rate of temperature change is proportional to the source voltage. The supply of a higher voltage, and consequently a higher current, to the heating element would reasonably be expected to increase the temperature of the heating element at a higher rate, thereby also increasing the resistance of the heating element at a higher rate. While the curve in Figure 4 does flatten out (i.e., zero slope), regardless of voltage, over certain portions thereof, such as during the melting of the frost, for example, claim 1 does not require that the voltage be proportional to the rate of temperature change at all times or for any particular length of time.

Finally, notwithstanding appellant's argument that Oishi is not analogous art with respect to appellant's invention, appellant has not offered any explanation in support of this contention. Two criteria have evolved for determining whether prior art is analogous: (1) whether the art is from the same field of endeavor, regardless of the problem addressed, and (2) if the reference is not within the field of the inventor's endeavor, whether the reference still is reasonably pertinent to the particular problem with which the inventor is involved. In re Clay, 966 F.2d 656, 658-59, 23 USPQ2d 1058, 1060 (Fed. Cir. 1992). See also In re Deminski, 796 F.2d 436, 442, 230 USPQ 313, 315 (Fed. Cir. 1986); In re Wood, 599 F.2d 1032, 1036, 202 USPQ 171, 174 (CCPA 1979). We are informed by the present specification (page 1, line 14) that appellant's invention "relates generally to power control systems." Likewise, the Oishi patent relates to a power control system for controlling the power applied to a heating element of a defrosting apparatus. We therefore consider Oishi and appellant's invention to be from the same field of endeavor. Moreover, even if Oishi were not considered to be from the same field of endeavor as appellant's invention, Oishi is generally concerned with the same problem addressed by appellant, namely, monitoring the temperature response of a resistive heating element to ensure that only the necessary power is applied to the resistive heating element, and thus still is reasonably pertinent to the particular problem with which appellant is involved.

Accordingly, we conclude that the Oishi patent is analogous art with respect to appellant's invention.

For the foregoing reasons, the arguments in appellant's brief do not persuade us of any error in the examiner's determination that the subject matter of claim 1 is unpatentable over Oishi. Therefore, rejection (2) is sustained as to claim 1, as well as claims 2-4 which are grouped therewith.

CONCLUSION

To summarize, the decision of the examiner to reject claims 1-4 under 35 U.S.C. § 103(a) is affirmed.

No time period for taking any subsequent action in connection with this appeal may be extended under 37 CFR § 1.136(a).

AFFIRMED

NEAL E. ABRAMS Administrative Patent Judge	)
LAWRENCE J. STAAB Administrative Patent Judge	) BOARD OF PATENT) APPEALS) AND) INTERFERENCES
JENNIFER D. BAHR Administrative Patent Judge	)

jdb/vsh

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